We recently moderated the 1985 Personal Computer Forum. Most of the fun occurred in one-on-one interactions and can't be summarized here. Even the following account of what happened on the panels is only a perspective on the points made and the topics discussed; full transcripts will be published soon.

The overriding concern at the forum was distribution channels: Are they too narrow? Too crowded? Or simply incapable of supporting products? How can the worthy channels and products (read, those of our attendees) separate themselves from the unworthy (the rest of them)? How can a good product find its way to its customers? But these questions hide a common assumption: That the market is there. If we could only reach our customers, the thinking goes, they would surely buy. One or two of these vendors may be right, but they can't all be. To lay their distress at the feet of the distribution channel is like blaming a soggy sponge for lack of absorbency.

The funnel

All agreed that current distribution channels are both inadequate and overcrowded, an ever-tightening funnel keeping products from their rightful customers. The retailers attending, under attack for the inadequacy of their channel, countered that other retailers are muddying the waters. Bad stores are driving out good ones by lowering prices and forcing service-intensive companies to compete with price in order to attract a customer base that understands little else. Maybe that's a fact of life in the retail business. Our fix is that to some extent the retail channel extracts a polite sort of extortion, collecting commissions on sales where both selling and support are performed by the vendor. This is particularly true of corporate software sales, where companies such as Lotus and Ashton-Tate have blessed the practice of paying commissions to local dealers -- regardless of the circumstances -- for a sale within their territory. One might well ask, If the retailers are doing such a terrible job, why do they continue to flourish? Probably because no one notices how little they are contributing. Products such as the IBM PC, 1-2-3 and MultiMate sell themselves, and products such as C.I.P (see page 10) and Desq just don't sell. Meanwhile, Borland International has had
tremendous success selling its products (SideKick and Turbo Pascal) by mail order. Although it has now signed up with Softsel, those products will presumably sell themselves over the counter just as they do through the pages of many magazines.

As Lotus was 1984's avatar of success, so may Borland be 1985's. Many software vendors are considering the use of mail-order or other direct sales far more seriously than heretofore. Publisher David Bunnell invited them to use his PC World instead of the "dinosaur" retail channel; retailer Ed Ramos (Computer Room/FIS) responded with heat that his stores' shelves will no longer carry Bunnell's publications.

One long-term solution for retailers is unbundling -- and a sea change in the fundamental nature of the "computer retail" business. Since there will inevitably be a multiplicity of channels offering a variety of services, each must learn to charge -- and teach its customers to pay -- for precisely those services it provides, no more and no less.

That's easier said than done, and we suspect there will be a lot of consolidation before the year is out. Thus another solution is simply to declare a victory and withdraw. Some companies will "consolidate" by being acquired, others by disappearing. MicroAge's attempted absorption of the Programs Unlimited franchisees, and the recent move by ComputerLand to accept conversions of existing stores rather than just new sites, reflect this overstoring.

If the numbers are right, certain optimists argue, the industry isn't overstored at all; it's undersupported and underserviced, but not overstored. Yes, we'd argue, those shipment numbers (from 2.7 million office pcs in 1984 to 3.7 million in 1985 and 4.7 million in 1986, says Future Computing) may be right, but more sales will go either direct, from manufacturers to large accounts, or through systems houses selling into vertical markets. The market is a lot smaller, or will be a lot harder to serve, than most vendors realize. We've already had the easy sales, the people willing to buy computers one by one and support themselves. Now we face a new kind of customer, either tremendously needy of support, or price-conscious. We suspect the profits just won't be there.

These new customers will buy commodities: Lotus 1-2-3 or the IBM PC, rather than exotic, and quite likely better, alternatives. Consider that thousands of users make do with Lotus 1-2-3 for word processing, file management, checkbook programs, whatever, rather than go to the trouble of learning a more appropriate but less familiar package designed for those tasks. It's enough to make an innovator cry. Just as 100 years ago the fear of a nation of telephone operators (contributing huge amounts to the gnp) faded as telephones grew easier to use, so will the pc business ultimately suffer fierce cost reductions due to standardization that will reduce its revenue growth even as its pervasiveness grows.

Over the next year, we expect to see IBM flourish as it ramps up production of ATs; compatible vendors are finding that customers would rather wait than switch. Price-cutting (including such de facto price moves as IBM's software consignment plan) will do more to hurt profits than to move products. Prices of the stores that sell the goods, as well as the goods themselves, will drop.

M&A

Deal-making -- or at least approaches -- was rampant at the forum. This too boils down to the distribution channel issue. Companies know they need critical mass of
people, visibility and money to squeeze through the retail funnel, or to bypass it. Continuously surrounded by hosts of supplicants were Lotus (generally not interested), Ashton-Tate, Software Publishing, et al. But most of those willing to be acquired looked more like black holes that would require more resources of management and money than they would be likely to return. Meanwhile, Ashton-Tate was busy on the acquisition of its own partly-owned Forefront unit, which developed Framework.

The problem is that few of these proposed combinations would generate much synergy. There are a lot of me-too packages in the hands of companies also short of marketing, sales and management talent. Whatever its success so far, Ashton-Tate is just learning to market its own products, let alone handle other people's, even though the thought of selling one's product through that powerhouse is appealing. Lotus and Software Publishing, both better-managed and more tightly focused than A-T, by that very token might be less successful at taking on new products, both because of internal not-invented-here and because of potential customer and investor mistrust of products that don't fit these companies' clear images. SPC's software publishing venture, the Power Up! catalogue (RELease 1.0, October 17, 1983), isn't yet profitable, but it probably represents a far more successful diversification for SPC than a merger or wholesale acquisition could. With start-up sales last year of $1 million, Power Up! represents a legitimate, low-cost channel for products looking for their customers.

Meanwhile, those companies with genuinely exciting products usually know it and are still trying to go it alone. As the year progresses, they may reconsider, which is sad but sensible.

Funding

It's tough to get funded these days. Most venture capitalists have at least one clunker that leaves them psychologically if not financially ill-prepared to fund a pc or pc-related company. Much of the disbursement of funds now going on is second- and third-round financings at lower valuations in last-ditch efforts to salvage moribund companies. Disappointed VCs are a strong force behind the mergers, as in VisiCorp/Paladin, Sorcim/IUS/Computer Associates, and Symantec/C&E.

Very unique

As our English teacher told us, either you're unique or you're not. Lotus is unique, as was ably pointed out by Vern Raburn (who once worked there) and others. Indeed, Lotus has probably done the industry great harm by turning the heads of countless entrepreneurs and venture capitalists who have dreamed too high, inveigling them into excesses of hiring and spending. To paraphrase Dickens: "Estimated sales, 19,000; actual sales, 20,000; result: profits and funding. Estimated sales, 21,000; actual sales, 20,000; result: losses and penury."

Unique as it is, Lotus should not be regarded either as an indication of possibility or as a yardstick of success. As Raburn said, "The planets were in line." VisiCalc was moribund for lack of enhancements, and dealers were looking for something new. The IBM PC had just appeared, providing an ideal, unfilled environment for a new product, and spurring a new market among corporations. Funding was available. Industry pundit and opinion-leader Ben Rosen put his clout behind the company. Finally, Lotus had a superb product in a new but not too new category.
Why will there never be another Lotus? Because even as good a product would now be competing in a much more crowded marketplace, with much more ambient noise, in a narrower and more narrowly defined category. In 1963, for example, Kellogg's Corn Flakes led the cold cereal market with a 13 percent share. By 1983, they had dropped to 7 percent of the market, while the second-ranked corn flake brand, Post Toasties, had fallen from 4.5 percent to 1 percent. Differentiation had escalated from corn vs. oats to a matter of names and shapes. The market had segmented into adults and kids, the sweet-toothed and the austere, the vitamin-conscious and the fruits-6-flakes nuts. The same thing will happen to the soft-ware market. Who knows? By 1990 we may well have Choc-o-Calc, Frosted Frames, Whooper Words, and BerryBase, as well as corn flakes and oatmeal, or 1-2-3 and PFS:plan.

The next few applications

There may yet be some more fundamental applications advances than the moral equivalent of sweeteners and food-coloring. Most responses to questions on what would be the hot applications of the nineties were vague, signifying that the panelists may in fact be working on something... Answers included such ideas as templates (built around the ubiquitous 1-2-3, mostly; see page 10), decision support tools, expert system applications and electronic mail.

By then, there will perforce be some commonly agreed-upon data structure, relational most likely, which will underlie the majority of applications. This dbms will be multi-user, probably sold by IBM, with a variety of other companies providing their own versions with a common interface, just as Oracle, among others, has adopted IBM's SQL language as a front-end to its relational dbms. Indeed, a version of SQL may end up as the standard, with a variety of interfaces to make it friendly to the user. SQL also underlies San Jose-based Network Innovations' Multiplex link, which front-ends relational dbmses such as Unify and Informix (with Oracle and Ingres on the way), running on UNIX machines or file servers, to make them accessible to most MS-DOS applications. A less complete system from Lutzky-Baird Associates of Culver City, CA, provides a UNIX-based file server for MacOffice with a classy user interface and electronic mail capabilities but without a built-in dbms. Ultimately, either system should serve both Macs and PCs simultaneously.

The file server will become a data base server, with its own dbms (perhaps UNIX-based), supporting a workgroup using a variety of individual MS-DOS applications which will call the file server. Resident on the file server will be a multi-user calendar, a mail system, and various other departmental facilities -- perhaps a resource/budget manager, a document/template/software library, and various reporting/monitoring programs which will check to see, for example, that sales and expense reports are filed on a timely basis, and which will trigger exception reports if the figures are out of line. These will use a lot of AI facilities and embedded knowledge, but there will be few "AI" applications as such. This entire scenario is most vigorously espoused by Apple, but it will slip into general use.

Meanwhile, each pc is likely to have its own, in-ROM version of this year's hot application, the desk manager (such as Spotlight, SideKick, Desk Organizer, Higgins, et al.).

Innovation

Several speakers, notably John Sculley in a reprise of his Comdex keynote speech, lamented the dearth of innovation. But our favorite moment came when Billy Ladin
and Dave Norman allowed as how they'd both had enough innovation, and would prefer to get down to the business of selling Jazz and PC-ATs if only they could get sufficient supplies (and maybe the LaserWriter too). Several people called for marketing innovations, such as CompuVision's automated demos. Unfortunately, systems such as these haven't done especially well; one problem is that retailers like to consider themselves unique, rather than rely on mass-produced demos pushing an array of products over which they have little control. (An analogy is department stores' use of name brands, which draw customers in but bring low margins because each store is competing on an equal basis; the chains prefer to sell their own differentiated private brands at higher mark-ups.) Customers, too, consider one PC/AT in than hand to be worth far more than two PC2s, or two ATs with UNIX, in the bush.

Is IBM really stifling innovation, as Ben Rosen among others charged? We prefer to think of IBM as a foundation for innovation; a standard around and on top of which smaller, more flexible companies can innovate. Indeed, Mitch Kapor (chairman of the IBM of the software industry, Lotus) stood up and challenged IBM to support a graphics standard so that other companies could adopt it. In other words, IBM performs a necessary function by blessing standards more quickly than a standards board could ever hope to. The damage IBM allegedly causes is in fact the result of too many companies fighting for markets that are already well-served, rather than seeking to build new markets through innovation as Apple is creditably doing. As proved by the PCjr, even IBM is at least partly restrained by market forces. One might say: "IBM. Consider the alternative" -- confusion, and hundreds of incompatible reinvented wheels.

Users

There was much talk of the forgotten user. In fact, the corporate user was well-attended-to, by lip service at least, but what of the small-business user? Long-run, we feel that the forgotten user is the small business customer. (See page 12.) Although he is hard to find and to service, he is the one that will ultimately provide the greatest source of profit in support and service, tailored software, and the like. Long-run, corporate customers will buy in bulk and provide much of their own support, cutting prices to levels unacceptable to most dealers and many suppliers. Corporations will ultimately buy most software direct, distributing it along with data over internal electronic channels.

Overall tone

What was the tone? People seemed reluctant to share their secrets, and some who weren't in the industry felt a little left out. Most distressing is this pervasive feeling that good ideas can be stolen; in fact, good ideas usually have a tough time being accepted. Ask the creators of Federal Express or of VisiCalc, who spent years convincing people of their ideas' merits -- crackpots all in the world's initial estimation.
Felicitous phrases

Billy Ladin: "We need to develop customers, not sales."

Dan Bricklin: "Productivity packages are tools, while applications [such as accounting or transaction-processing] are machinery."

Doug Carrollton: "The [home market] is interested in enrichment, not efficiency."

Bill Gates: "Rather than go back to the character-based world and get everybody to change their applications, we're taking the shift to graphics as the one chance to get people to do menus the same way, dialogue boxes the same way, use of the keyboard the same way."

Steve Jobs: "We have to provide a high-enough-level tool so that the only barriers are your time and your imagination."

Regis McKenna [to illustrate the primacy of word of mouth]: "How many of you here have been asked, 'What personal computer should I buy?'" [Nearly 100 percent show of hands.]

John Couch: "My Lisa experience taught me to believe in miracles, but I don't believe in scheduling them."

Roger Lewis: "Retail is appropriate for five brands, but not for one or 100."

Mitch Kapor: "The best uses for personal computers haven't been invented yet. To disagree with that is simply a failure of imagination."

Bob Berland: "Not everybody in the world wants to rush to work at 8 o'clock in the morning to be a programmer."

Marvin Minsky: "The main problem of artificial intelligence [is] how you get computers to do the kinds of things a four- or five-year-old can do."

John Sculley: "Innovation doesn't have to do with features in a product; innovation has to do with defining a market by way of product concepts."

Arthur Einstein: "Seventh Avenue has seven seasons, but we seem to have a season every week...the customer just doesn't have the ability to assimilate it."

1985 TRANSCRIPTS, 1986 DATES

Transcripts of the Forum will be available soon and will be mailed to all attendees and subscribers. The actual shipment date will be announced at the time of shipment.

We are currently selecting a date for the 1986 Personal Computer Forum. If you know of any conflict with either February 9 to 12 or February 16 to 19, please call Rona Levine at (212) 586-3530 or forever hold your peace. The final date will be announced in our next issue.

RELEASE 1.0, February 18, 1985
FEBRUARY 14 QUESTION: WILL YOU BE MY SSO?

The problems of achieving effective distribution and support also trouble IBM, despite its vast resources. It piloted third-party reseller programs in the late 70s, and went whole-hog with that channel, particularly with the PC, in recent years. Less than 1 percent of sales just a few years ago, sales through third parties reached almost 10 percent of the total in 1984. The National Distribution Division was created in 1983 to consolidate management of the "sales and service organizations" (SSOs) which offload IBM's support and sales efforts (VARs and VADs and the like); it just last month acquired the last of the PC distribution effort, which was previously handled out of Boca. All these third-party channels generally handle end-users who are too small for IBM to handle directly, and who must therefore buy through resellers.

It turns out however that even the large customers who buy direct may need more help than IBM alone is always willing or able to provide. Two recent attacks on this problem, started in 1983 and now gaining steam, are the Complementary Marketing Organization (CMO) Program and the Marketing Assistance Program (MAP), whereby a sales and service organization provides installation assistance and hand-holding (but does not perform the actual sale) in return for a fee from IBM, ranging from 3 percent on mainframes to 10 percent on Displaywriters and the like. MAP right now is a program in the National Marketing Division (medium-size accounts), and could likely be extended to the National Accounts Division (large accounts) this year. It is already a significant source of customer support, with over 900 such arrangements in existence. Each MAP is handled on a local basis by the local branch. The CMO program, by contrast, has fewer than 40 participants, who operate nationwide but specialize in a particular vertical market, such as Dynamics Controls Corp. in the hospital business. Products from the 4361 on down -- System 36es most notably -- fall under these programs. PCs are not included, but a MAP or CMO shepherding a customer's purchase of an office automation system is likely to earn his fee on the higher-end stuff and end up willy-nilly supporting the PCs as well.

Since marketing is carried out jointly, and leads flow back and forth (the IBM salesperson gets a full commission on such sales), the main impact of the MAP and CMO programs is to offload IBM's support burden, weaning customers from IBM's stretched and costly support systems. (To be sure, the programs also raise enthusiasm for IBM's products among third parties who are frequently called on for advice.) In distribution through the National Distribution Division, by contrast, IBM sells the equipment directly to the third party and theoretically never hears of it again, apart from formal hardware service agreements.

The world at IBM's service

But does the third-party support concept, with or without third-party sales, make sense? On the one hand, IBM wants to expand with ever-greater incursions into software and distribution (viz. its Product Centers); on the other, it faces the same explosion of needy customers taxing inadequate support resources that is bedeviling the rest of the industry. (Perhaps the solution will be Steve Jobs' vision of "a mother in every box" -- the truly friendly computer.)

In the long run, IBM will come to the realization that although its nameplate alone provides a certain amount of value-added, it must continue to provide directly the support and service that the nameplate signifies if it wants to get away with premium pricing -- and retain its market dominance. (Just remember that

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wonderful IBM ad showing a pillow with the caption: "What most people want from a computer company is a good night's sleep.") Selection of the SSOs, says one IBMer, "must be done carefully and thoughtfully to protect the three letters" -- a sentiment that may evoke rueful titters from those familiar with the vast grey market in IBM PCs. Besides, how much extra can you really charge for "careful selection"? It's not the same as having account control. Or as Billy Ladin says, "You win only sales, not customers."

Another problem with third-party sales is IBM's inability to bring in and compensate the people who would be most valuable -- accountants and independent consultants whose ethics prohibit them from taking fees. CPAs are constrained by a formal code of ethics, and various consultants' organizations set the same strictures. Of course, there's nothing to prevent "friendly" arrangements and business referrals, governed by IBM's own strict sense of propriety. We assume IBM is thinking about this issue, but there's no easy resolution.

While most of the industry looks longingly at IBM's position, IBM too has things that keep it awake at night.

X.400: HOW TO REACH YOUR VALENTINE

Electronic mail is sweeping the world, but unfortunately most systems are incompatible and must rely on paper and the post office to make the final delivery to customers using other systems. There's one market where IBM doesn't set the standard. Indeed, there's no clear leader in the E-mail marketplace, with EasyLink and MCI Mail vying for customers at about 150,000 each. Consequently, it has been easy for a standard to be established by common consent in this relative vacuum. That standard is X.400, endorsed by the CCITT (the folks who brought you X.25) and a host of other nonpartisan bodies. That's the good news. The bad news is that it won't be widely implemented until mid-1986: People using it now simply wouldn't have many others to talk to.

You probably won't hear much about X.400 outside of technical circles: Since it's likely to be truly universal and doesn't belong to anyone in particular, it lacks controversy potential. Indeed, it serves mostly as a reminder of how easy things can be when protocols are commonly developed, shared, and widely agreed upon. Proponents include the vast majority of government telephone/telegraph operations overseas, which is fundamentally all that counts, as well as the major U.S. E-mail vendors (Western Union, MCI, GTE Telenet, Tymshare, ITT, et al.), and companies such as DEC, Wang, Apple, Xerox, and 3Com. IBM hasn't yet announced support, but is likely to. And if it doesn't, some enterprising vendor will supply facilities for IBM users to have X.400 on a third-party basis.

In simple terms, X.400 handles the application layer of the International Standards Organization Open Systems Interconnection model, and governs such things as how messages are addressed, copied and distributed to several parties, acknowledged, relayed, and answered. Certain of these conventions are tough to implement on a worldwide basis (it's tough to keep a satisfactory user directory for the entire globe, which means that users must have extra knowledge to reach overseas recipients), but overall virtually everyone finds the standard satisfactory.

Release 1.0, February 18, 1985
FAMILIARITY BREEDS COMFORT: 3-2-1 REPORT!

What's the second most widely used file manager after PFS:file? dBASE II? R:base? Please? Concentric Data Systems' C.I.P? Not quite. Surprisingly enough, it's Lotus 1-2-3. That simple fact turned out to be an almost insuperable challenge for Concentric Data Systems of Westboro, MA. Its nifty file manager, written up in RELease 1.0 (November 28, 1983) and elsewhere, didn't have much of a chance in a market that valued familiarity over features. Now, wiser and poorer by most of the $4 million the company raised in two rounds of financing, Concentric is taking this fact as an opportunity. If 1-2-3 is the equivalent of PFS:file, where then is the equivalent of PFS:report? You guessed it!

3-2-1-Report! has all the elegance (and a superset of the code) of C.I.P's reporting facility, which won plaudits last year. It lets you edit report formats by direct manipulation, selecting a title or a field location and moving it with the cursor to the desired location. Most options -- field types, spaces between report categories, etc. -- require only selection from a menu rather than a type-in. The package as a whole has the 1-2-3 feel, with a status line up-top, menus second, and long prompts explaining each menu choice on the third line.

For $99, it enables the user to take a table from 1-2-3 and generate sophisticated reports, using nice features such as an option that lets you display "Lastname, Name P." as "Name P. Lastname," but sort it under Lastname. People can be sorted by department, their average salaries calculated, and so forth. Selection by criteria is easy and pop-up-menu-driven, avoiding the cryptic procedures necessary in Lotus 1-2-3 to do a simple file search.

The product may seem trivial in execution, but it's brilliantly apt in concept: The market has been waiting for it. Observers of users are amazed at the lengths to which users will go to continue using 1-2-3 rather than switch to another package that might be far more appropriate (such as, say, C.I.P). Concentric, at last, has listened to the market, and made it easier for users to do what they want to do. Its only task now is to find the proper remarketer...stay tuned.

FAMILIARITY BREEDS COMFORT: SOFTBRIDGE

Another amplification of Lotus 1-2-3 comes from Softbridge Microsystems of Cambridge, MA. Designed for financial planners handling individual clients, the Softbridge Integrator works as sophisticated, knowledge-rich webbing linking 1-2-3, Relational Database Systems' Informix, and MultiMate. The webbing embodies a huge amount of financial planning knowledge, everything from how to plan for children's college expenses to assessing the Florida state intangibles tax and to what happens when "spouse predeceases client." Each client's data, and each consultant user's customized query forms, boilerplate letters and text, and reports are stored only once, either as text files or in the Informix data base, ensuring data integrity and consistency among the various components of a client's model. (That's not to say that you can't have a number of scenarios: Juan goes to CCNY vs. Juan goes to Stanford vs. Juan gets a job; Alice predeceases spouse vs. Alice languishes in a costly nursing home.) The system produces a wide variety of customized reports that aggregate into the sort of voluminous, individualized report that can be presented in a binder and sold for $3000.

RELease 1.0, February 18, 1985
The system also handles "practice management," enabling the user to manage his business, schedule appointments and follow-ups, and do cross-client searches and the like. Softbridge estimates its target universe consists of about 100,000 professional personal financial planners, of whom about 30,000 already use Lotus 1-2-3. Most of them will end up purchasing another copy of 1-2-3 in the bundled system, which goes for $4500, or for $11,000 including a Compaq Deskpro. (Softbridge is one of Lotus's two VARs -- the other one is still secret -- and a de facto VAR of Compaq, although the hardware is generally delivered and supported by local ComputerLand. Although the entire system is delivered on tape, rather than on the 37 floppies it would fill up, the customer still needs that Lotus disk in the drive to run it. Cynics will wonder why the system uses the combination of packages it does, rather than Symphony. The polite answer is that it has been in development since before Symphony was available.)

Softbridge's Integrator and Customizer, together with the reports, data bases and other information the system includes, well exemplify our concept of artificial knowledge (RELease 1.0, November 13). The system contains no "reasoning" capability -- it's entirely procedural -- but it's tremendously wise about the ways of the world. Its customizability, while vast, is all preprogrammed, and consists of modifications to a defined structure rather than the flexibility of a true AI system. Certainly none of this matters to the user, who can use it as a piece of machinery with hundreds of adjustable dials, rather than as either a tool (cf. Dan Bricklin's remark, page 6) or a multi-functioned, learning robot. The system has just now begun to ship (as of January 31) and is already exciting widespread interest among financial planners. The follow-ons -- for accountants, auditors, insurance salesmen, et al. -- are easy to figure.

OUT OF THE MOUTHS OF CUSTOMERS

Years ago: "I'd like one of them IBM Apples."
Years ago: "I'd like VisiCalc and a machine to run it on."
Now: "I'd like 1-2-3 and a machine to run it on."
Soon: "I'd like Jazz and a machine to run it on."
Maybe...?: "I'd like VaporDB and a file server to run it on."
Last month: "Will this here UNIX make my 1-2-3 run better?"
In perpetuity: "Whaddaya mean, 'training'? It says right here that all I have to do..."
"I know it's available. I saw an ad..."
"But down the street they said it would..."

RELease 1.0, February 18, 1985
PC-based expert system generators are a hot item, at least among vendors. Although we estimate that there are at best about 1000 such systems installed in commercial environments, and even then primarily only for experimental use, two more marketers of such systems visited us last week. One is Human Edge of Palo Alto, CA, which is remarketing Expert-Ease (RELease 1.0, January 23, 1984) since the folding of its original, somewhat tortuous distribution channels last fall. The other is Helix Technology of London with Tess (for The Expert System Shell).

Human Edge has cleaned up Expert-Ease's bugs and improved its documentation, meanwhile lowering the price from $2000 to $695. It has sold more than 200 copies since reintroduction at fall Comdex. The product remains fairly simple to use and correspondingly limited, with the danger of generating nonsensical rules with insufficient data, and a lack of any calculating capabilities even though it's otherwise well-suited for numerical data. (I.e., it can do greater-thans and less-thans, but it couldn't work with price/earnings ratios given stock prices and earnings data. Nor at this point can it import data files anyway.)

Laying down the rules

Expert-Ease generates rules from the user's input of sample data, while Tess and the other packages described below rely on the user to state the rules. That provides assurance that the rules make sense, but it does require that the user know what they are -- which may be precisely the problem requiring solution... Thus both types of packages address the current market of experimenters, but long-run each variety will find its own niche or, more likely, they will merge into more broadly useful hybrids.

Helix, which primarily sells mainframe-based design services to large banks, is well-connected to the U.K.'s Alvey Committee, a government-sponsored sponsor of AI and other virtuous high-tech causes. Tess was designed with funding of £300,000 from the government and £340,000 and is now almost ready to be marketed. In the U.S. the company is considering using the services of Thoughtware of Coconut Grove, FL, among others. We like the idea: Thoughtware, vendor of various management training tools and of Trigger (RELease 1.0, November 13), has just the right combination of commercial credibility and lust for lucre to make a go of selling such an esoteric product to the industrial marketplace. (About 50 percent of Thoughtware's revenue comes from direct sales to large corporations.)

Although Thoughtware would position it in the $700 price range, Tess strongly resembles Teknowledge's M.1 ($10,000, or a baby version for $2000) and TI's Personal Consultant ($3000); like them, it is based upon EMI and uses backward-chaining in a relatively uncontrolled fashion to come to some conclusion about predefined goals, such as a selection among possible conclusions for loan ratings, employee salaries, or those famous wine selections. Although a little easier to use than the others, Tess is still cumbersome to operate and provides little help in letting the user/builder see the structure of his bases of knowledge and of rules, but it is correspondingly easy to understand. That is, while implementations of the system may be complex and cryptic, its fundamental principles are easy to grasp. As such, it makes an excellent experimental tool. As a practical tool, and with a clearer interface, Tess appeals to Thoughtware as a complement to its other management products.

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For all our skepticism at the moneymaking potential of system building tools as opposed to the knowledge-rich applications they will build, Teknowledge for one professes itself delighted with the response to M.1. There's an active user group, thick with Prolog proponents, that's swapping ideas and experiences. Although it's hard to consider a package that sells for $10,000 as anything akin to homebrew, there's a definite cult growing up around M.1 which might broaden its affections to include the TI product and Tess. Out of such a cult grew the pc business. But remember, it only got large and respectable once it lost its cultishness, became user-friendly with the development of applications rather than programming languages, and went in for television ads.

As we said last time: "New! Improved!! Now with AI!!"
VERTICAL-MARKET MORALITY TALE

One of the business problems of the microcomputer industry is the prevalence of people who are in it for love, not money, and who muddy the waters for competitors who do need to make profits in order to survive and prosper. You see this both on the positive side -- companies like Quark that are content to put out good products without being pushy -- but more often on the negative side -- dealers who don't know how to run a business and concentrate on price, or who offer free service because they enjoy tinkering with machines; people who half-finish software products and move on to the next one, leaving customers with Release 0.8 of a nicely-conceived product. These people are tough to compete with; imagine what they're like to sell to.

That's exactly what many vertical marketers will be attempting to do. Microcomputers aren't the only industry that lures entrepreneurs with excitement; consider sports, arts, entertainment, etc. Even fields like laundries, plumbing, and hardware stores (with all due respect) are populated with small businesspeople who want to make money but don't know how. These are the stuff of vertical markets.

One company selling into a vertical market that caught our eye recently is Aerodata of Houston, TX. Now here's a nice little company with a tightly targeted, finely tailored product for a clearly defined market -- the country's 4000 fixed base operators. At $20,000 a crack and 20 percent penetration, that's a $16-million initial market: not a huge market, but enough to base a business on, especially given the follow-on revenues and account control it represents, and conservative projections to keep selling costs down. Aerodata's 1987 forecast is for $5 million in sales -- realistic, but not enough to excite most VCs.

(What's a fixed base operator? It's the little business that runs each of those general aviation terminals that dot the country. Aside from a couple of chains, most are owned by local people who pump fuel (a major part of revenues), maintain aircraft, lease and rent planes, sell supplies, run flying clubs, teach flight school, match-make fliers and owners in charter arrangements, and handle for-sale listings. As small businesses, they handle receivables, payables and payroll, manage inventories, pay (or avoid) taxes, keep maintenance records, and juggle account relationships. They could also, conceivably, provide their customers with weather listings, handle flight-plan filings, etc. But just like pc nuts in the pc business, many in this business are airplane nuts, and don't worry too much about making a buck. Things like ranking customers by profitability, or forecasting fuel demand, or leveraging their FBO into a data-base supplier, don't really turn them on. It's hard to sell profitability to someone who'd be happier testing aircraft rather than assumptions, or forecasting weather rather than budgets.)

Labor of love

Aerodata was started two years ago by John Couch, a former chief pilot for a large West Texas FBO, and Jim Kirkendall, an old hand who's got an attention span of about four years and has started several businesses in his 20-year career, among them U-tote-M and the retail launch of People magazine for Time Inc. Aerodata's product, bundled with an 8-bit Altos 580 and two or three terminals, costs on the order of $15,000 to $20,000, with support included for the first year. Its product provides full accounting support, including plane leasebacks, and a lot of other handy items, but there's room for upgrades, to put it politely, to handle things like flight-plan filings and charter-price quotes.

Release 1.0, February 18, 1985
The problem is, the product is just now ready, four months late. The group's initial funding of $250,000 has mostly been spent, partly on two trade shows -- no, not Comdex, but the National Business Aircraft Association show in Atlanta in October and the National Air Transportation Association Show in March 1983 in Washington, DC. The company has seven installations, and few funds to drum up any more. Venture capitalists basically aren't interested in a business this size. Cessna, one obvious candidate to market or even acquire the system, has an FBO system of its own. Piper hired EDS to work on such a system, but found the project too expensive and dropped it. (Other competitors include Aviation Financial Management of Seattle, WA, with its FBO Business Management System on the Wang OIS (multi-user) and on the PC (single-user), for $7900, hardware extra. A variety of flight-planning and other services that FBOs could resell or compete with are available from CompuServe, Columbus, OH and PHH Aviation Systems, Golden, CO.)

So where does that leave Aerodata? It's got a system that works, a customer base that needs it -- if that base only knew it -- and the prospect of a larger market as more of the business goes on-line, or as Aerodata itself expands into related fields. Like Triad Systems of Sunnyvale, CA, which sells to auto parts wholesalers, Aerodata could eventually expand into a supplier of fuel and parts price information, handling electronic ordering of parts by the FBOs. It might get into the business of supplying on-line aircraft sales listings. Who knows? But right now, Aerodata is stuck with the challenge of educating its market.

And where does it leave all those other vendors rushing into vertical markets? For starters, they'd better know the right trade shows in their chosen markets. But far beyond that, they should realize that vertical markets won't be any easier. There's none of the Lotus allure to excite investors, no vast customer base across which to spread costs, little interest and little cash among most of the potential customers. That's why only a crazy entrepreneur could ever hope to succeed. Some will; most won't.
IN MEMORIAM

JOANNA MALONE

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